

REMARKS

Claims 1 through 12 and 16 through 27 are currently pending in the application.

Claims 3-4, 10-11 and 23-24 are indicated as allowed by the Examiner if rewritten in independent form, and including the limitations of any intervening claims.

I.

Claim 26 is objected to as being of improper dependent form for failing to limit the subject matter of a previous claim. Claim 26 is amended herein to depend from claim 25.

II.

Claim 27 stands rejected under § 112, ¶ 2, for containing a limitation to "said applying ultrasonic energy" which does not have antecedent basis. Claim 27 has been amended to address this rejection.

III.

Claim 1 stands initially rejected under § 103(a) as unpatentable over Tsuge et al., as supported by Penney, and in view of Shwartzman.

Briefly, the Examiner seems to characterize Tsuge et al. as disclosing a photo resist lift-off process wherein a dielectric layer is deposited on a substrate and a photo resist which is covering a portion of the substrate. Penney is cited as evidence that part of the dielectric layer is conventionally formed on the sidewall of the photo resist during the deposition process. Finally, Shwartzman is cited as teaching the use of megasonic energy.

The background of the prior art described in the present patent application generally describes a similar state of the prior art in this field, e.g., as shown in Figures 1a through 3b, and Figure 5.

However, claim 1 contains a limitation not disclosed or taught in any of the prior art of record. Specifically, the last sentence in claim 1 recites that the megasonic energy is applied to the substrate surface "via a thin meniscus of lift-off fluid to crack said sidewall dielectric layer."

The patents cited by the Examiner do not describe or teach this limitation. Moreover, the Examiner does not even characterize them as disclosing or teaching this limitation. Tsuge et al., Penney, and Schwartzman do not disclose or teach that the ultrasonic layer is applied via a thin meniscus of lift-off fluid.

Shwartzman, which discloses a megasonic cleaning apparatus, clearly shows that the megasonic energy is applied through a fluid at a considerable distance from the wafers which are being cleaned. The device in Shwartzman is similar to the device described in the present application, as illustrated in Figure 5. In fact, in the megasonic cleaning apparatus described in Shwartzman, there is even an additional chamber of fluid, i.e., the "buffer means," interposed between the wafers and the megasonic transducers.

Claim 1 recites that the megasonic energy is applied to the substrate surface "via a thin meniscus of lift-off fluid." This is not disclosed or taught in any of these references. Therefore, claim 1, and hence claims 2-27 which depend therefrom, are patentable over Tsuge et al., Penney, and Shwartzman.

IV.

Claims 2, 5-9, 12, 16-22 and 25-27 stand rejected under § 103(a) as unpatentable over Tsuge et al., as supported by Penney and in view of Shwartzman as applied to claim 1 above, and further in view of Hackenberg.

A. Claims 2-12 depend from claim 1 and are thus believed to be patentable for the reasons explained above.

B. Claim 16 is amended herein to recite that "the acoustic energies applied to the substrate surface via a thin meniscus of lift-off fluid." Hackenberg also does not disclose or teach this limitation.

Therefore, claim 16, and hence claims 17-27 which depend therefrom, are also now patentable over Tsuge et al., Penney, Shwartzman, and Hackenberg, either individually or in any combination thereof.

ALLOWABLE SUBJECT MATTER

Claims 3-4, 10-11 and 23-24 are indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant appreciates this early notification by the Examiner of the presence of allowable subject matter in the application. However, for the reasons explained above, and in view of the amendment to claim 16, Applicant believes that all the claims are now allowable over the prior art of record.

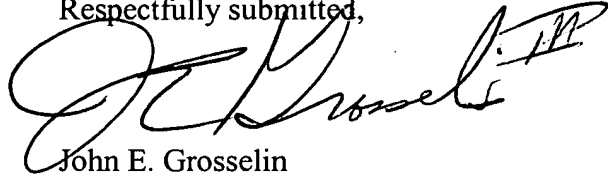
CONCLUSIONS

Claim 1, and amended claim 16, each require that acoustic energy is applied to the substrate "via a thin meniscus of liquid." None of the prior art currently of record discloses or teaches applying acoustic energy (whether ultrasonic or megasonic) to the substrate "via a thin meniscus of liquid" between the substrate and the transducer.

Because this limitation is not disclosed or taught in any of the prior art of record, claims 1 and 16 (as amended), and hence claims 2-12 and 17-27 which depend therefrom, are patentable over Tsuge et al., Penney, Shwartzman, and Hackenberg.

Accordingly, reconsideration and allowance of claims 1-12 and 16-27, as amended, are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "J. E. Grosselin", with a stylized flourish at the end.

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